FCC TEST REPORT
FCC ID:2BNU3-W322

Applicant:	Guangdong Stellar Craft Technology Co., LTD
Address:	Renqian Road 19, Wushi, Sanxiang, Zhongshan, China
Manufacturer:	Guangdong Stellar Craft Technology Co., LTD
Address:	Renqian Road 19, Wushi, Sanxiang, Zhongshan, China
EUT:	wireless charger
Trade Mark:	N/A
Model Number:	W322
Date of Receipt:	Mar. 21, 2025
Test Date:	Mar. 21, 2025 - Apr. 22, 2025
Date of Report:	Apr. 22, 2025
Prepared By:	Shenzhen DL Testing Technology Co., Ltd.
Address:	101-201, Building C, Shuanghuan, No.8, Baoqing Roa Baolong Industrial Zone, Baolong Street, Longgang Shenzhen, Guangdong, China
Applicable Standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.247 ANSI C63.10:2013
Test Result:	Pass
Report Number:	DLE-250425018R

Prepared (Test Engineer):	Dimon Tan
Reviewer (Supervisor):	Jack Bu
Approved (Manager):	Jade Yang

This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Shenzhen DL Testing Technology Co., Ltd.

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1. VERSION

Report No.	Version	Description	Approved
DLE-250425018R	Rev.01	Initial issue of report	Apr. 22, 2025

2. TEST SUMMARY

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Pass
AC Power Line Conducted Emission	15.207	Pass
Spurious Emission	15.209(a)(f)	Pass
20dB Bandwidth	15.215	Pass

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

2.1 TEST FACILITY

Test lab: Shenzhen DL Testing Technology Co., Ltd.

Address: 101-201, Building C, Shuanghuan, No.8, Baoqing Roa Baolong Industrial Zone, Baolong Street, Longgang Shenzhen, Guangdong, China

FCC Test Firm Registration Number: 854456
Designation Number: CN1307
IC Registered No.: 27485
CAB ID.: CN0118

2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ± U，where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2，providing a level of confidence of approximately 95 %。

No.	Item	Uncertainty
1	3m camber Radiated spurious emission(9KHz-30MHz)	U=4.5dB
2	3m camber Radiated spurious emission(30MHz-1GHz)	U=4.8dB
3	3m chamber Radiated spurious emission(1GHz-6GHz)	U=4.9dB
4	3m chamber Radiated spurious emission(6GHz-40GHz)	U=5.0dB
5	Conducted disturbance	U=3.2dB
6	RF Band Edge	U=1.68dB
7	RF power conducted	U=1.86dB
8	RF conducted Spurious Emission	U=2.2dB
9	RF Occupied Bandwidth	U=1.8dB
10	RF Power Spectral Density	U=1.75dB
11	humidity uncertainty	U=5.3%
12	Temperature uncertainty	U=0.59℃

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Product Name:	wireless charger
Model No.:	W322
Serial No.:	N/A
Model Difference:	N/A
Hardware version:	V1.0
Software version:	V1.0
Operation Frequency:	ANT 1&2&3: 115kHz~205kHz
Modulation type:	ASK
Antenna Type:	ANT 1&2&3: Loop Coil Antenna
Antenna gain:	ANT 1&2&3: 0dBi
Ratings:	Input: 5V⎓3A, 9V⎓3A, 12V⎓2.5A Wireless Output : Phone:7.5W, 10W, 15W AirPods:3W Watch: 2.5W
Test description:	Battery≥98%, =50%and ≤1% are tested, and the worst is ≤1%.

3.2 TEST MODE

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Test Modes:			Description:	
Mode 1	Input:5V, 3A Phone Output:7.5W	AC/DC Adapter +EUT+ iPhone	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 2	Input:5V, 3A Phone Output:10W	AC/DC Adapter +EUT+ iPhone	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 3	Input:5V, 3A Phone Output:15W	AC/DC Adapter +EUT+ iPhone	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 4	Input:5V, 3A Earphone Output:3W	AC/DC Adapter +EUT+ Earphone	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 5	Input:5V, 3A Watch Output:2.5W	AC/DC Adapter +EUT+ Watch	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 6	Input:5V, 3A Phone Output:7.5W Earphone Output:3W	AC/DC Adapter +EUT+ iPhone + Earphone	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 7	Input:5V, 3A Phone Output:10W Earphone Output:3W	AC/DC Adapter +EUT+ iPhone + Earphone	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 8	Input:5V, 3A Phone Output:7.5W Watch Output:2.5W	AC/DC Adapter +EUT+ iPhone + Watch	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 9	Input:5V, 3A Phone Output:10W Watch Output:2.5W	AC/DC Adapter +EUT+ iPhone + Watch	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 10	Input:5V, 3A Earphone Output:3W Watch Output:2.5W	AC/DC Adapter +EUT+ Earphone + Watch	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	

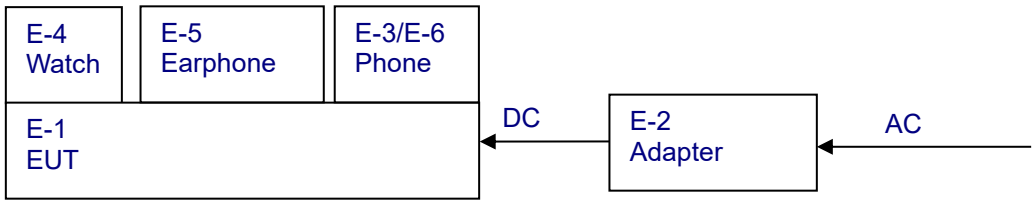
Mode 11	Input:5V, 3A Phone Output:7.5W Earphone Output:3W Watch Output:2.5W	AC/DC Adapter +EUT+ iPhone + Earphone + Watch	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 12	Input:9V, 3A Phone Output:7.5W	AC/DC Adapter +EUT+ iPhone	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 13	Input:9V, 3A Phone Output:10W	AC/DC Adapter +EUT+ iPhone	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 14	Input:9V, 3A Phone Output:15W	AC/DC Adapter +EUT+ iPhone	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 15	Input:9V, 3A Earphone Output:3W	AC/DC Adapter +EUT+ Earphone	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 16	Input:9V, 3A Watch Output:2.5W	AC/DC Adapter +EUT+ Watch	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 17	Input:9V, 3A Phone Output:7.5W Earphone Output:3W	AC/DC Adapter +EUT+ iPhone + Earphone	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 18	Input:9V, 3A Phone Output:10W Earphone Output:3W	AC/DC Adapter +EUT+ iPhone + Earphone	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 19	Input:9V, 3A Phone Output:15W Earphone Output:3W	AC/DC Adapter +EUT+ iPhone + Earphone	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 20	Input:9V, 3A Phone Output:7.5W Watch Output:2.5W	AC/DC Adapter +EUT+ iPhone + Watch	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 21	Input:9V, 3A Phone Output:10W Watch Output:2.5W	AC/DC Adapter +EUT+ iPhone + Watch	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 22	Input:9V, 3A Phone Output:15W Watch Output:2.5W	AC/DC Adapter +EUT+ iPhone + Watch	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	

Mode 23	Input:9V, 3A Earphone Output:3W Watch Output:2.5W	AC/DC Adapter +EUT+ Earphone + Watch	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 24	Input:9V, 3A Phone Output:7.5W Earphone Output:3W Watch Output:2.5W	AC/DC Adapter +EUT+ iPhone + Earphone + Watch	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 25	Input:9V, 3A Phone Output:10W Earphone Output:3W Watch Output:2.5W	AC/DC Adapter +EUT+ iPhone + Earphone + Watch	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 26	Input:9V, 3A Phone Output:15W Earphone Output:3W Watch Output:2.5W	AC/DC Adapter +EUT+ iPhone + Earphone + Watch	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 27	Input:12V, 2.5A Phone Output:7.5W	AC/DC Adapter +EUT+ Earphone	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 28	Input:12V, 2.5A Phone Output:10W	AC/DC Adapter +EUT+ Earphone	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 29	Input:12V, 2.5A Phone Output:15W	AC/DC Adapter +EUT+ Earphone	Battery ⩾98%	Pretest
			Battery =50%	Pretest
			Battery ⩽1%	Record
Mode 30	Input:12V, 2.5A Earphone Output:3W	AC/DC Adapter +EUT+ Earphone	Battery ⩾98%	Pretest
			Battery =50%	Pretest
			Battery ⩽1%	Record
Mode 31	Input:12V, 2.5A Watch Output:2.5W	AC/DC Adapter +EUT+ Watch	Battery ⩾98%	Pretest
			Battery =50%	Pretest
			Battery ⩽1%	Record
Mode 32	Input:12V, 2.5A Phone Output:7.5W Earphone Output:3W	AC/DC Adapter +EUT+ iPhone + Earphone	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 33	Input:12V, 2.5A Phone Output:10W Earphone Output:3W	AC/DC Adapter +EUT+ iPhone + Earphone	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 34	Input:12V, 2.5A Phone Output:15W Earphone Output:3W	AC/DC Adapter +EUT+ iPhone + Earphone	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	

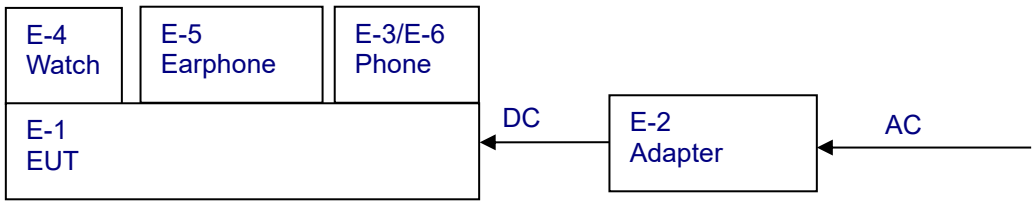
Mode 35	Input:12V, 2.5A Phone Output:7.5W Watch Output:2.5W	AC/DC Adapter +EUT+ iPhone + Watch	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 36	Input:12V, 2.5A Phone Output:10W Watch Output:2.5W	AC/DC Adapter +EUT+ iPhone + Watch	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 37	Input:12V, 2.5A Phone Output:15W Watch Output:2.5W	AC/DC Adapter +EUT+ iPhone + Watch	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 38	Input:12V, 2.5A Earphone Output:3W Watch Output:2.5W	AC/DC Adapter +EUT+ Earphone + Watch	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 39	Input:12V, 2.5A Phone Output:7.5W Earphone Output:3W Watch Output:2.5W	AC/DC Adapter +EUT+ iPhone + Earphone + Watch	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 40	Input:12V, 2.5A Phone Output:10W Earphone Output:3W Watch Output:2.5W	AC/DC Adapter +EUT+ iPhone + Earphone + Watch	Battery ⩾98%	Pretest
			Battery =50%	
			Battery ⩽1%	
Mode 41	Input:12V, 2.5A Phone Output:15W Earphone Output:3W Watch Output:2.5W	AC/DC Adapter +EUT+ iPhone + Earphone + Watch	Battery ⩾98%	Pretest
			Battery =50%	Pretest
			Battery ⩽1%	Record
Note: All modes have been tested, and the report only reflects the worst case data.				

3.3 BLOCK DIAGRAM OF EUT CONFIGURATION

Conducted Emission



Radiated Emission



3.4 TEST CONDITIONS

Temperature: 23~26℃

Relative Humidity: 54~63 %

3.5 DESCRIPTION OF SUPPORT UNITS (CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	wireless charger	N/A	W322	N/A	EUT
E-2	Power Adapter	Aohai	A895-200150C-CN1	N/A	Auxiliary
E-3	Phone	Apple	iPhone 13 Por Max	N/A	Auxiliary
E-4	Watch	Apple	iWatch SE	N/A	Auxiliary
E-5	Earphone	Apple	AirPods 2	N/A	Auxiliary
E-6	Phone	Samsung	Galaxy S20	N/A	Auxiliary

Item	Shielded Type	Ferrite Core	Length	Note
C1	NO	NO	0.8M	DC cable unshielded

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in『Length』column.
(3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.

3.6 EQUIPMENTS LIST FOR ALL TEST ITEMS

Conduction Emissions Test

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	LISN	R&S	ENV216	101471	N/A	Sep. 30, 2024	Sep. 29, 2025
2	LISN	CYBERTEK	EM5040A	E1850400149	N/A	Sep. 30, 2024	Sep. 29, 2025
3	Test Cable	N/A	C-01	N/A	N/A	Sep. 30, 2024	Sep. 29, 2025
4	EMI Test Receiver	R&S	ESCI3	101393	4.42 SP3	Sep. 29, 2024	Sep. 28, 2025
5	EMC Software	Frad	EZ-EMC	Ver.EMC-CON 3A1.1	N/A	\	\

Radiation Emissions & Radiation Spurious Emissions Test

Item	Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	KEYSIGHT	N9020A	MY55370835	A.17.05	Sep. 29, 2024	Sep. 28, 2025
2	Spectrum Analyzer (10kHz-39.9GHz)	R&S	FSV40-N	100363	1.71 SP2	Sep. 30, 2024	Sep. 29, 2025
3	EMI Test Receiver (9kHz-7GHz)	R&S	ESCI7	100969	4.32	Sep. 29, 2024	Sep. 28, 2025
4	Bilog Antenna (30MHz-1500MHz)	Schwarzbeck	VULB9168	00877	N/A	Sep. 30, 2024	Sep. 29, 2025
5	Horn Antenna (1GHz-18GHz)	Agilent	AH-118	071145	N/A	Sep. 30, 2024	Sep. 29, 2025
6	Horn Antenna (15GHz-40GHz)	A.H.System	SAS-574	588	N/A	Sep. 30, 2024	Sep. 29, 2025
7	Loop Antenna	TESEQ	HLA6121	58357	N/A	Oct. 11, 2024	Oct. 10, 2025
8	Amplifier (30-1000MHz)	EM Electronics	EM330 Amplifier	60747	N/A	Sep. 29, 2024	Sep. 28, 2025
9	Amplifier (1GHz-26.5GHz)	HuiPu	8449B	3008A00315	N/A	Sep. 29, 2024	Sep. 28, 2025
10	Amplifier (500MHz-40GHz)	QuanJuDa	DLE-161	097	N/A	Sep. 30, 2024	Sep. 29, 2025
11	Test Cable	N/A	R-01	N/A	N/A	Sep. 30, 2024	Sep. 29, 2025
12	Test Cable	N/A	R-02	N/A	N/A	Sep. 30, 2024	Sep. 29, 2025
13	Test Cable	N/A	R-03	N/A	N/A	Sep. 30, 2024	Sep. 29, 2025
14	D.C. Power Supply	LongWei	TPR-6405D	GQ7516	N/A	Sep. 29, 2024	Sep. 28, 2025
15	EMC Software	Frad	EZ-EMC	Ver.EMC-CON 3A1.1	N/A	\	\
16	Turntable	MF	MF-7802BS	N/A	N/A	\	\
17	Antenna tower	MF	MF-7802BS	N/A	N/A	\	\

RF Conducted Test

Item	Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	KEYSIGHT	N9020A	MY55370835	A.17.05	Sep. 29, 2024	Sep. 28, 2025
2	Spectrum Analyzer (10kHz-39.9GHz)	R&S	FSV40-N	100363	1.71 SP2	Sep. 30, 2024	Sep. 29, 2025
3	Test Cable	N/A	RF-01	N/A	N/A	Sep. 30, 2024	Sep. 29, 2025
4	Test Cable	N/A	RF-02	N/A	N/A	Sep. 30, 2024	Sep. 29, 2025
5	Test Cable	N/A	RF-03	N/A	N/A	Sep. 30, 2024	Sep. 29, 2025
6	ESG Signal Generator	Agilent	E4421B	GB40051203	B.03.84	Sep. 29, 2024	Sep. 28, 2025
7	Signal Generator	Agilent	N5182A	MY47420215	A.01.87	Sep. 29, 2024	Sep. 28, 2025
8	Magnetic Field Probe Tester	Narda	ELT-400	0-0344	N/A	Sep. 29, 2024	Sep. 28, 2025
9	Van der Hoofden measuring head	Schwarzbeck Mess-elektronik	VDHH 9502	9502-039	N/A	Sep. 30, 2024	Sep. 29, 2025
10	Wideband Radio Communication Test	R&S	CMW500	106504	V 3.7.22	Sep. 30, 2024	Sep. 29, 2025
11	MWRF Power Meter Test system	MW	MW100-RFCB	10371	N/A	Sep. 29, 2024	Sep. 28, 2025
12	Power Meter	KEYSIGHT	N1912AP	926431	A.05.00	Sep. 29, 2024	Sep. 28, 2025
13	D.C. Power Supply	LongWei	TPR-6405D	GQ7516	N/A	Sep. 29, 2024	Sep. 28, 2025
14	RF Software	MW	MTS8310	V2.0.0.0	N/A	\	\

4. CONDUCTED EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.10:2013
Test Frequency Range:	150KHz to 30MHz
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto

4.1.1 POWER LINE CONDUCTED EMISSION LIMITS

FREQUENCY (MHz)	Limit (dBuV)		Standard
	Quas-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

Note:

(1) *Decreases with the logarithm of the frequency.

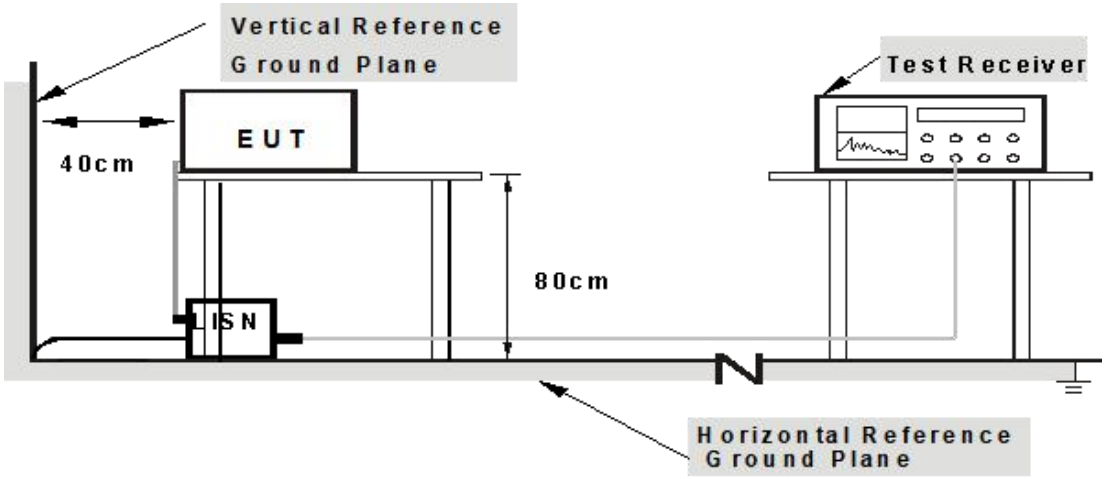
4.1.2 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.3 DEVIATION FROM TEST STANDARD

No deviation

4.1.4 TEST SETUP



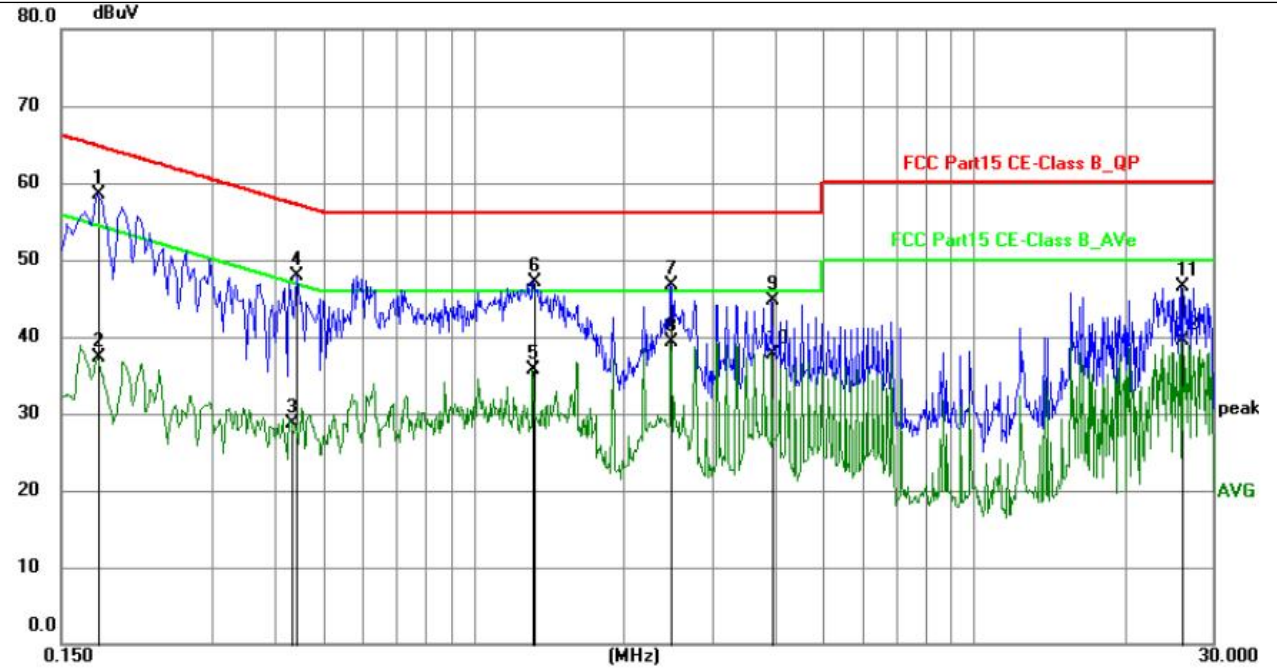
Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

4.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

4.1.6 TEST RESULT

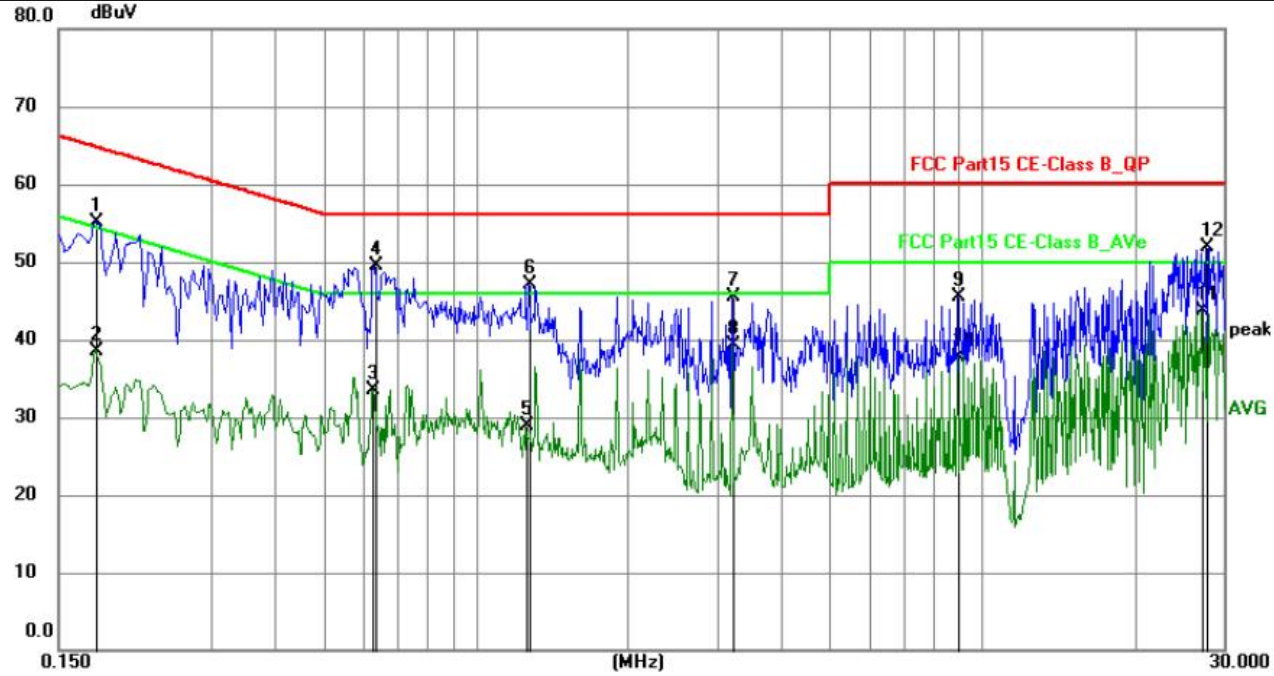
Temperature：	26℃	Relative Humidity：	54%
Pressure：	101kPa	Phase :	L
Test Voltage ：	AC 120V/60Hz	Test Mode:	Mode 41



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1770	38.25	20.29	58.54	64.63	-6.09	QP	P	
2	0.1770	17.05	20.29	37.34	54.63	-17.29	AVG	P	
3	0.4335	8.29	20.32	28.61	47.19	-18.58	AVG	P	
4	0.4425	27.65	20.31	47.96	57.01	-9.05	QP	P	
5	1.3154	15.46	20.31	35.77	46.00	-10.23	AVG	P	
6	1.3200	26.85	20.31	47.16	56.00	-8.84	QP	P	
7	2.4855	26.36	20.32	46.68	56.00	-9.32	QP	P	
8	2.4855	19.00	20.32	39.32	46.00	-6.68	AVG	P	
9	3.9525	24.32	20.34	44.66	56.00	-11.34	QP	P	
10	3.9525	17.35	20.34	37.69	46.00	-8.31	AVG	P	
11	26.0385	25.85	20.65	46.50	60.00	-13.50	QP	P	
12	26.0385	18.90	20.65	39.55	50.00	-10.45	AVG	P	

Notes:
1.An initial pre-scan was performed on the line and neutral lines with peak detector.
2.Quasi - Peak and Average measurement were performed at the frequencies with maximized peak emission.
3.Final Level = Reading level + Correct Factor.
4.Correct Factor = Lisn factor+ Cable loss factor + limiter factor.
5.Margin = Measurement Level-Limit.
6.All test modes were tested, with only the worst Mode 41 recorded.

Temperature：	26℃	Relative Humidity：	54%
Pressure：	101kPa	Phase ：	N
Test Voltage ：	AC 120V/60Hz	Test Mode:	Mode 41



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1770	34.92	20.28	55.20	64.63	-9.43	QP	P	
2	0.1777	18.20	20.28	38.48	54.59	-16.11	AVG	P	
3	0.6269	13.26	20.30	33.56	46.00	-12.44	AVG	P	
4	0.6314	29.15	20.30	49.45	56.00	-6.55	QP	P	
5	1.2614	8.62	20.31	28.93	46.00	-17.07	AVG	P	
6	1.2703	26.80	20.31	47.11	56.00	-8.89	QP	P	
7	3.2190	25.19	20.32	45.51	56.00	-10.49	QP	P	
8	3.2190	18.98	20.32	39.30	46.00	-6.70	AVG	P	
9	8.9250	24.99	20.44	45.43	60.00	-14.57	QP	P	
10	8.9250	17.27	20.44	37.71	50.00	-12.29	AVG	P	
11	27.2130	22.98	20.71	43.69	50.00	-6.31	AVG	P	
12	27.8025	31.18	20.73	51.91	60.00	-8.09	QP	P	

Notes:
1.An initial pre-scan was performed on the line and neutral lines with peak detector.
2.Quasi - Peak and Average measurement were performed at the frequencies with maximized peak emission.
3.Final Level = Reading level + Correct Factor.
4.Correct Factor = Lisn factor+ Cable loss factor + limiter factor.
5.Margin = Measurement Level-Limit.
6.All test modes were tested, with only the worst Mode 41 recorded.

5. RADIATED EMISSION MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.209
Test Method:	ANSI C63.10:2013
Test Frequency Range:	9kHz to 1GHz
Test site:	Measurement Distance: 3m
Receiver setup:	

Frequency	Detector	RBW	VBW	Value
9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

5.1 RADIATED EMISSION LIMITS

Limits for frequency below 30MHz

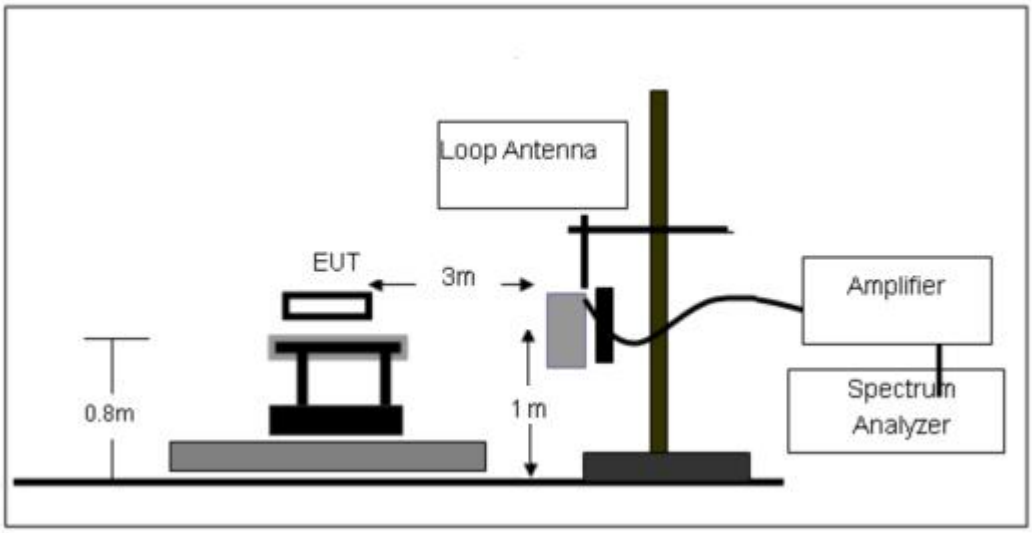
Frequency	Limit (uV/m)	Measurement Distance(m)	Remark
0.009-0.490	2400/F(kHz)	300	Quasi-peak Value
0.490-1.705	24000/F(kHz)	30	Quasi-peak Value
1.705-30	30	30	Quasi-peak Value

Limits for frequency Above 30MHz

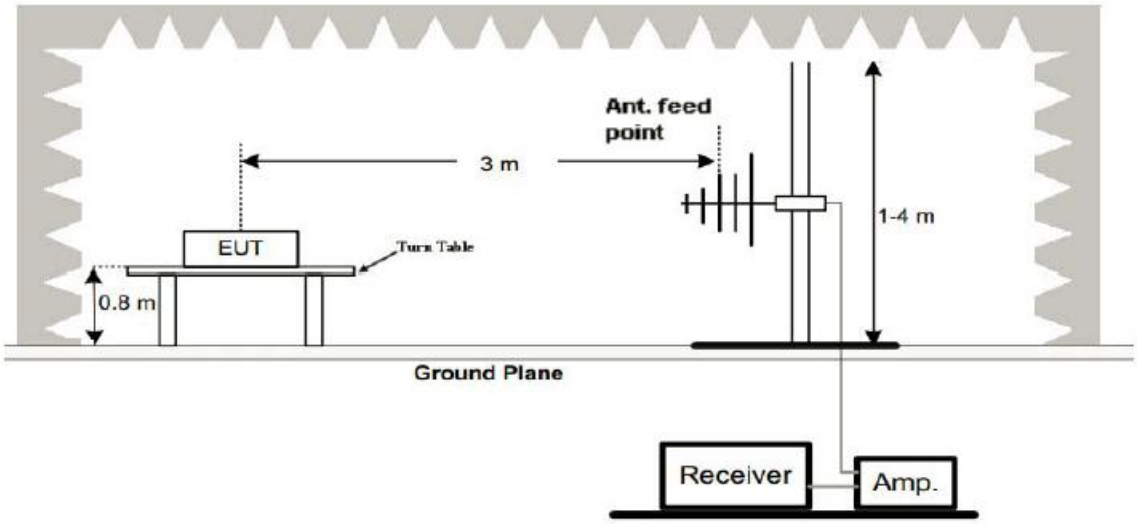
Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.00	Quasi-peak Value
88MHz-216MHz	43.50	Quasi-peak Value
216MHz-960MHz	46.00	Quasi-peak Value
960MHz-1GHz	54.00	Quasi-peak Value
Above 1GHz	54.00	Average Value
	74.00	Peak Value

5.2 ANECHOIC CHAMBER TEST SETUP DIAGRAM

（A）Radiated Emission Test-Up Frequency Below 30MHz



（B）Radiated Emission Test-Up Frequency 30MHz~1GHz



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209 and FCC 15.205 limits.

5.3 TEST PROCEDURE

Below 30MHz
a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meterssemi-anechoic chamber. The table was rotated 360 degrees to determine the position of thehighest radiation.
b. The EUT was set 3 meters away from the interference-receiving loop antenna and in thecenter of a loop antenna, which was mounted on the top of a variable-height antenna tower.
c. For each suspected emission, the EUT was arranged to its worst case, the height ofinterference-receiving loop antenna centre is 1 meter above the ground, and the rotatable tablewas turned from 0 degrees to 360 degrees to find the maximum reading.
d. Both coaxial (loop plane perpendicular to the ground plane and to the measurement axis) andcoplanar (loop plane perpendicular to the ground plane and coplanar with the measurement axis)polarizations of the antenna are set to make the measurement.
e. The test-receiver system was set to quasi-peak detect function and specified bandwidth withmaximum hold mode when the test frequency is below 1 GHz.

30MHz-1GHz
a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meterssemi-anechoic chamber. The table was rotated 360 degrees to determine the position of thehighest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mountedon the top of a variable-height antenna tower.
c. The antenna is a broadband antenna, and its height is varied from one meter to four metersabove the ground to determine the maximum value of the field strength. Both horizontal andvertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antennawas tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degreesto 360 degrees to find the maximum reading.
e. The test-receiver system was set to quasi-peak detect function and specified bandwidth withmaximum hold mode when the test frequency is below 1 GHz.

5.4 DEVIATION FROM TEST STANDARD

No deviation

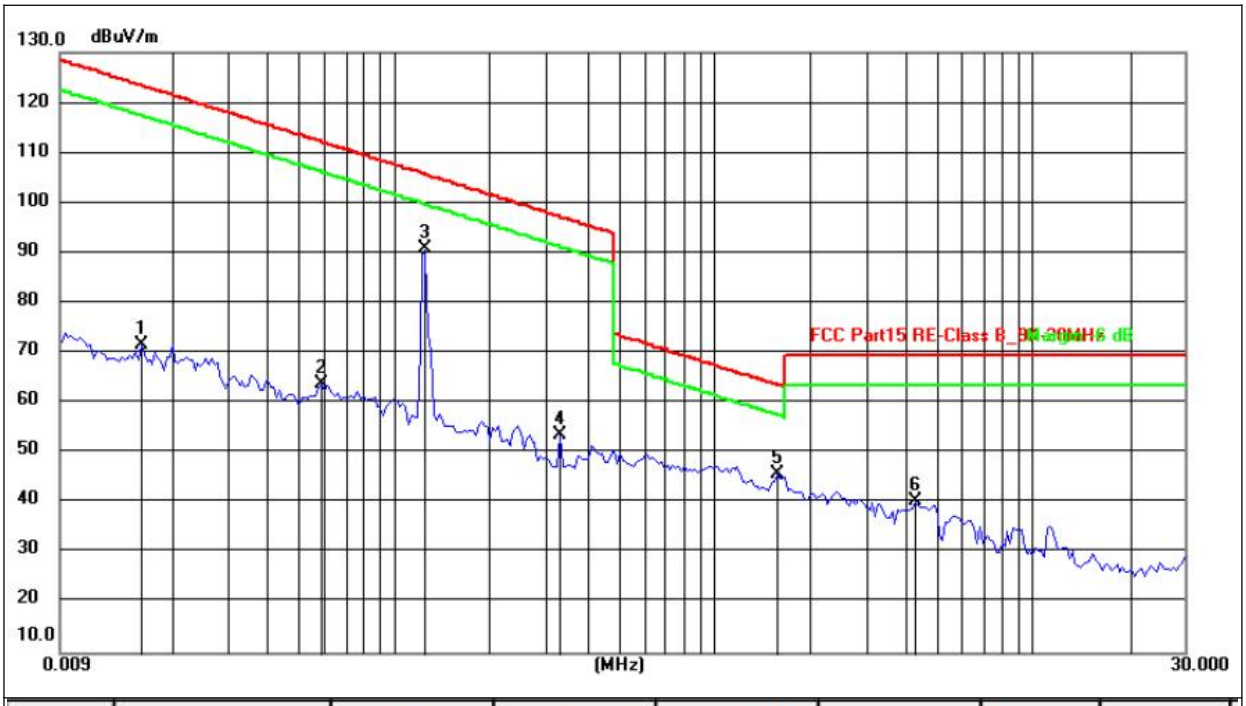
5.5 TEST RESULT

Measurement data:

Note: Limit dBuV/m @3m = Limit dBuV/m @300m+ 80
Limit dBuV/m @3m = Limit dBuV/m @30m + 40

9 kHz~30 MHz:

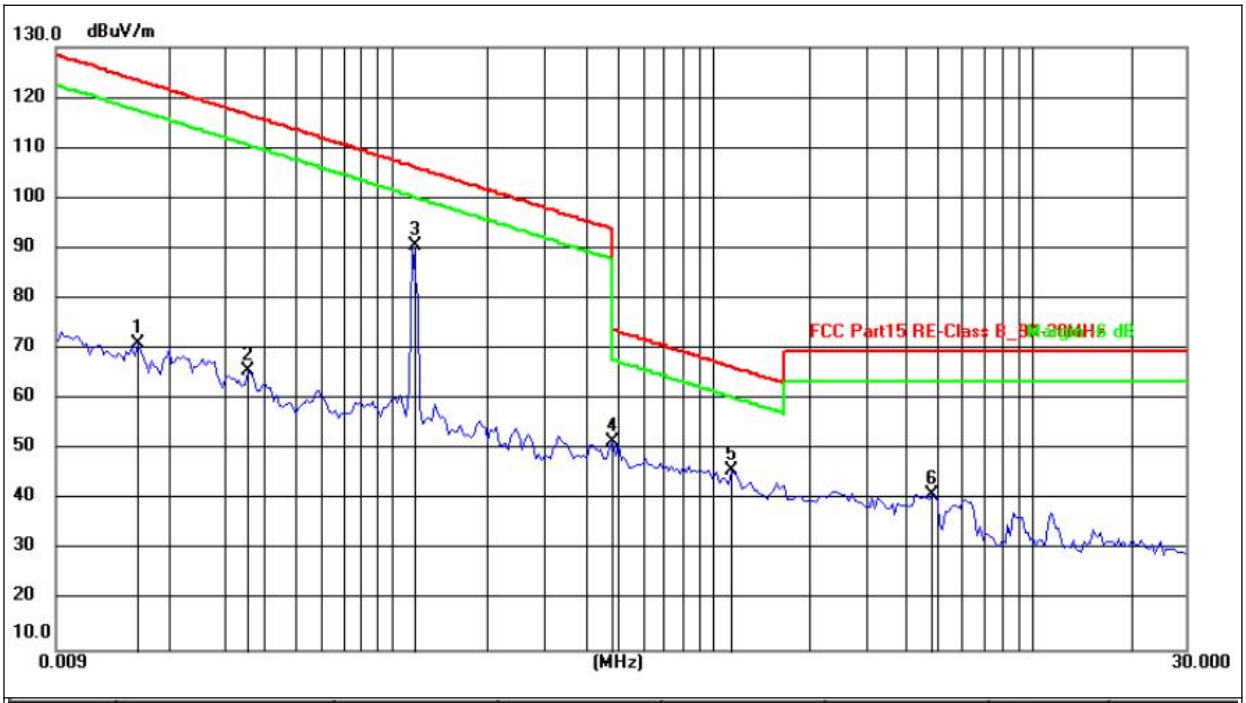
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	coaxial
Test Voltage:	DC 12V	Test Mode:	Mode 29



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.0160	51.07	20.49	71.56	123.52	-51.96	peak
2	0.0592	43.94	19.80	63.74	112.16	-48.42	peak
3	0.1254	70.93	19.91	90.84	105.64	-14.80	peak
4	0.3326	33.59	20.13	53.72	97.17	-43.45	peak
5	1.5846	26.06	19.86	45.92	63.61	-17.69	peak
6	4.2816	20.96	19.54	40.50	69.54	-29.04	peak

Remarks:
1.An initial pre-scan was performed on the peak detector.
2.Quasi-Peak measurement were performed at the frequencies with maximized peak emission.
3.The emission levels of other frequencies are very lower than the limit and not show in test report.
4.Final Level = Reading level + Correct Factor.
5.Correct Factor = Antenna factor+ Cable loss factor - Amplifier factor.
6.Margin= Measurement Level-Limit.

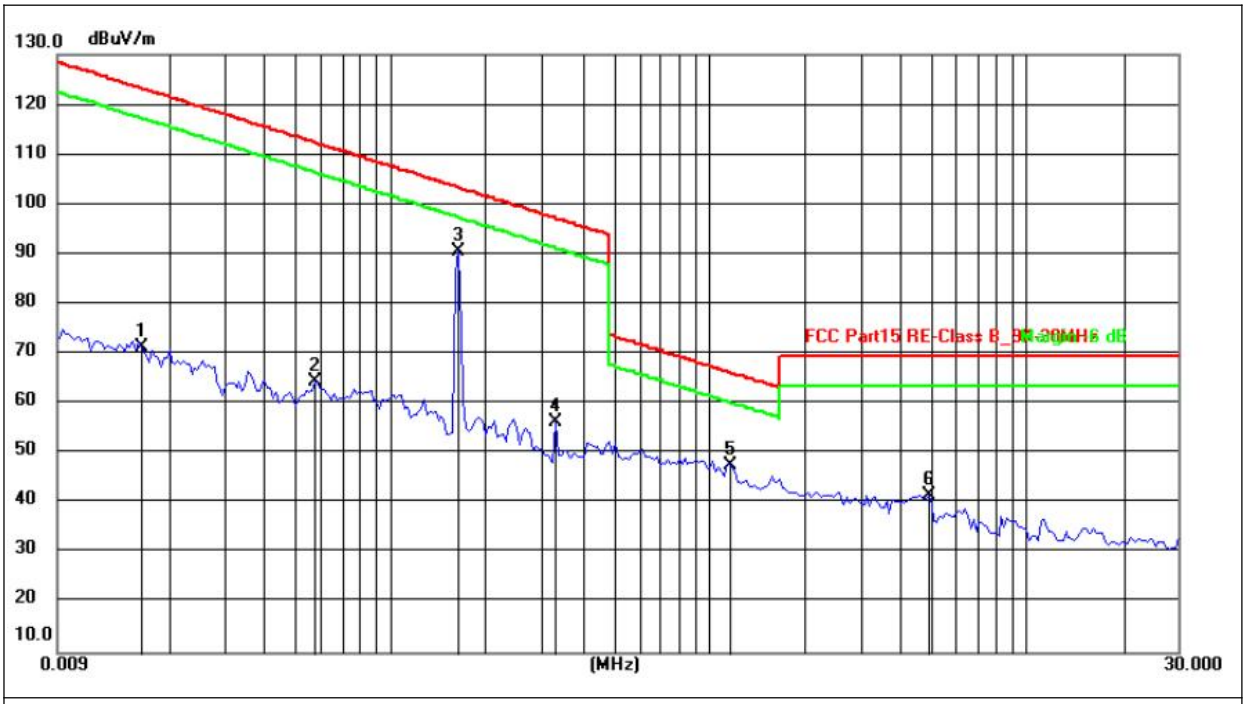
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	coaxial
Test Voltage:	DC 12V	Test Mode:	Mode 30



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.0160	50.57	20.49	71.06	123.52	-52.46	peak
2	0.0357	45.61	20.08	65.69	116.55	-50.86	peak
3	0.1172	70.73	19.86	90.59	106.23	-15.64	peak
4	0.4889	31.35	20.20	51.55	93.82	-42.27	peak
5	1.1451	25.99	19.93	45.92	66.43	-20.51	peak
6	4.8357	21.64	19.49	41.13	69.54	-28.41	peak

Remarks:
1.An initial pre-scan was performed on the peak detector.
2.Quasi-Peak measurement were performed at the frequencies with maximized peak emission.
3.The emission levels of other frequencies are very lower than the limit and not show in test report.
4.Final Level = Reading level + Correct Factor.
5.Correct Factor = Antenna factor+ Cable loss factor - Amplifier factor.
6.Margin= Measurement Level-Limit.

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	coaxial
Test Voltage:	DC 12V	Test Mode:	Mode 31

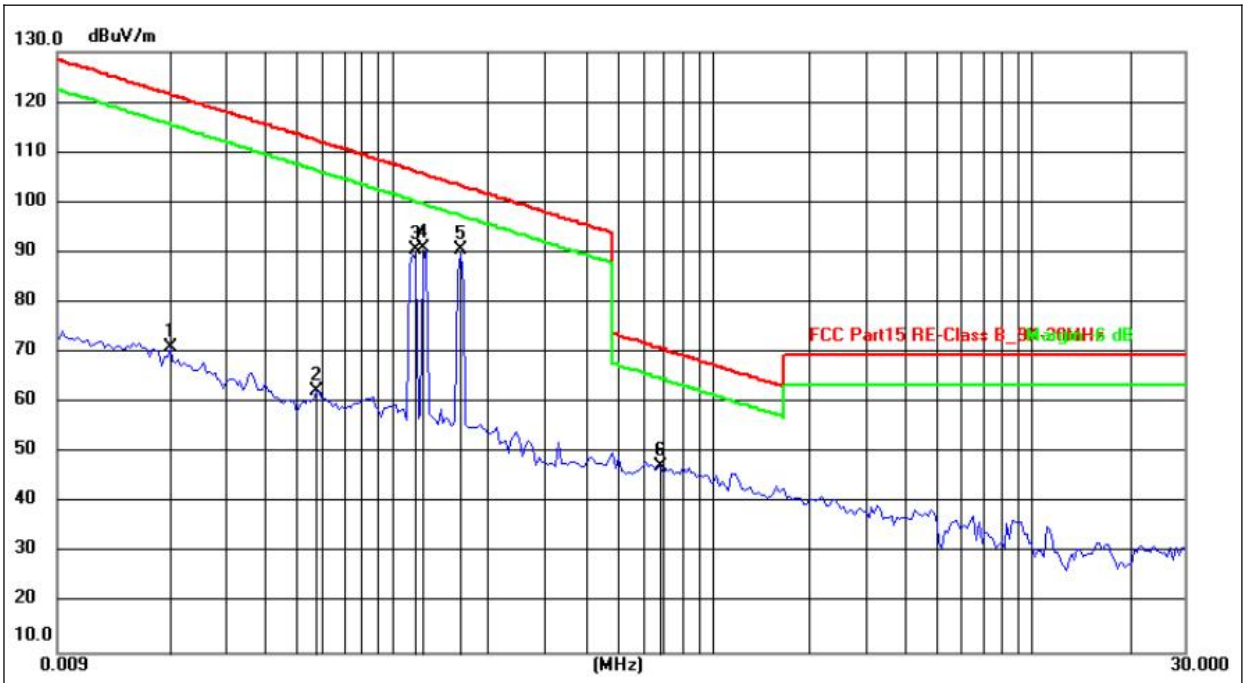


V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.0165	51.00	20.48	71.48	123.26	-51.78	peak
2	0.0580	44.61	19.78	64.39	112.34	-47.95	peak
3	0.1618	70.49	20.07	90.56	103.42	-12.86	peak
4	0.3326	36.09	20.13	56.22	97.17	-40.95	peak
5	1.1693	27.85	19.93	47.78	66.25	-18.47	peak
6	4.9348	22.09	19.47	41.56	69.54	-27.98	peak

Remarks:
1.An initial pre-scan was performed on the peak detector.
2.Quasi-Peak measurement were performed at the frequencies with maximized peak emission.
3.The emission levels of other frequencies are very lower than the limit and not show in test report.
4.Final Level = Reading level + Correct Factor.
5.Correct Factor = Antenna factor+ Cable loss factor - Amplifier factor.
6.Margin= Measurement Level-Limit.

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	coaxial
Test Voltage:	DC 12V	Test Mode:	Mode 41

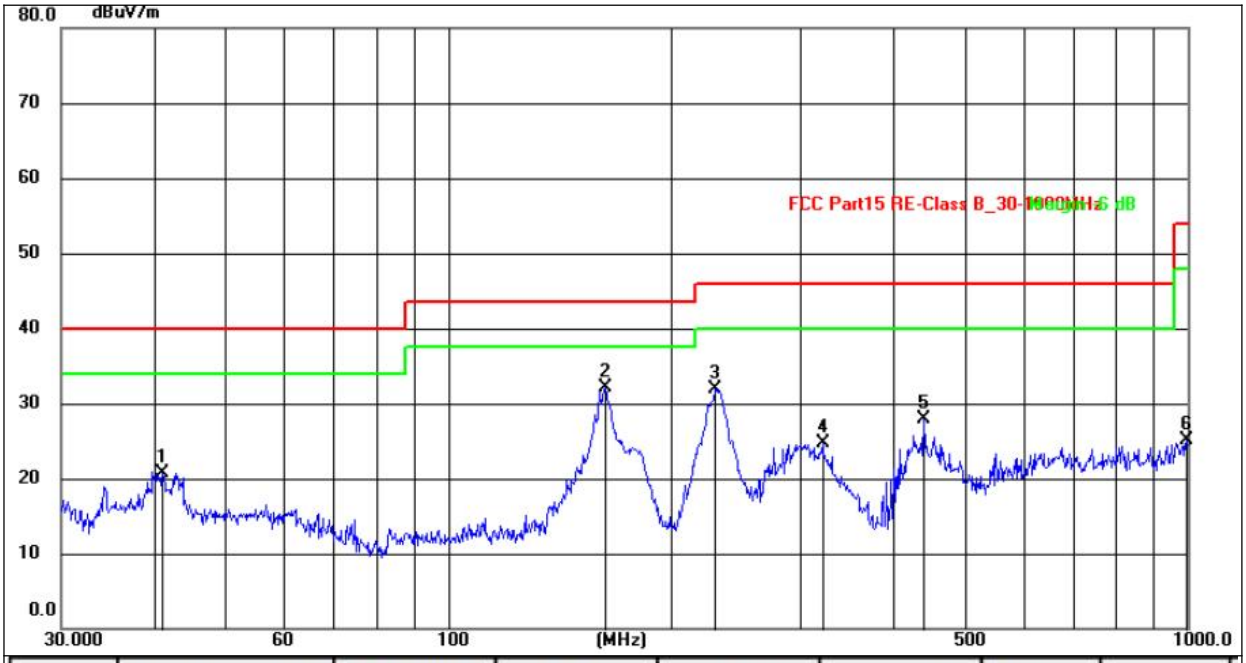


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.0200	50.56	20.45	71.01	121.58	-50.57	peak
2	0.0580	42.61	19.78	62.39	112.34	-49.95	peak
3	0.1172	70.73	19.86	90.59	106.23	-15.64	peak
4	0.1254	70.93	19.91	90.84	105.64	-14.80	peak
5	0.1618	70.49	20.07	90.56	103.42	-12.86	peak
6	0.6902	27.02	20.37	47.39	70.82	-23.43	peak

Remarks:
1.An initial pre-scan was performed on the peak detector.
2.Quasi-Peak measurement were performed at the frequencies with maximized peak emission.
3.The emission levels of other frequencies are very lower than the limit and not show in test report.
4.Final Level = Reading level + Correct Factor.
5.Correct Factor = Antenna factor+ Cable loss factor - Amplifier factor.
6.Margin= Measurement Level-Limit.

30MHz-1GHz

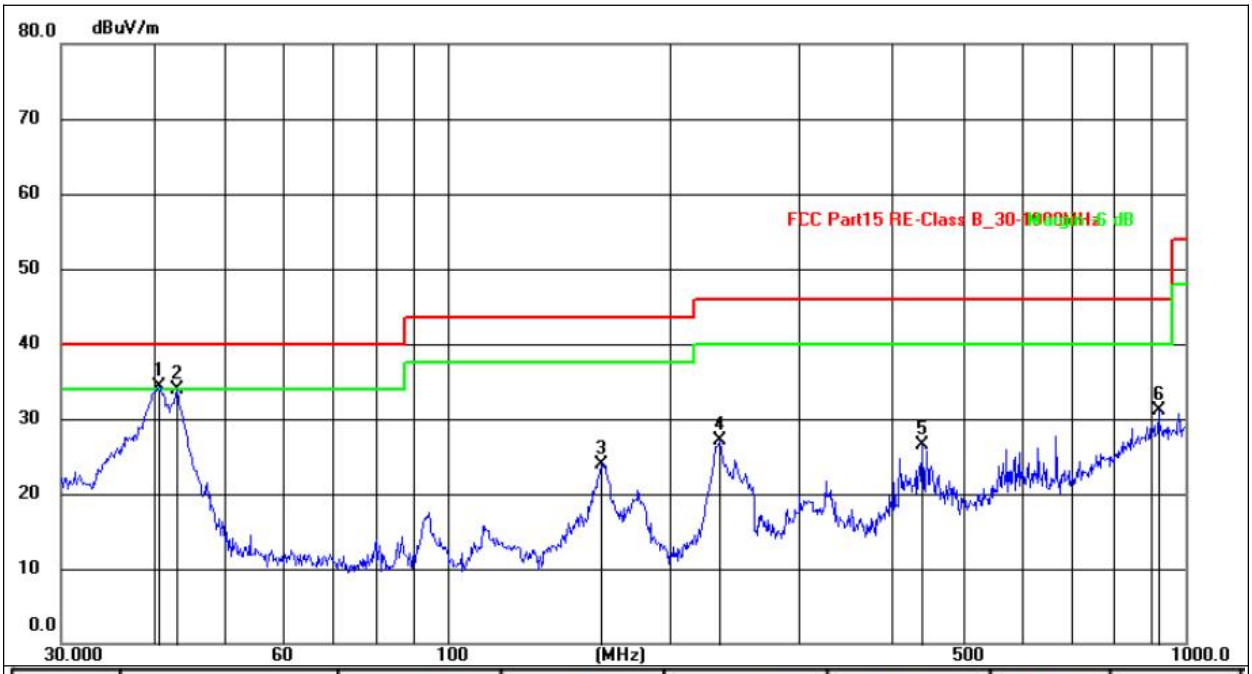
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	DC 12V	Test Mode:	Mode 41



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	41.1319	34.63	-14.02	20.61	40.00	-19.39	QP
2	163.1817	48.27	-16.22	32.05	43.50	-11.45	QP
3	230.0985	48.66	-16.68	31.98	46.00	-14.02	QP
4	321.0605	41.12	-16.45	24.67	46.00	-21.33	QP
5	440.1961	41.98	-14.04	27.94	46.00	-18.06	QP
6	996.4995	29.82	-4.63	25.19	54.00	-28.81	QP

Remarks:
1.An initial pre-scan was performed on the peak detector.
2.Quasi-Peak measurement were performed at the frequencies with maximized peak emission.
3.The emission levels of other frequencies are very lower than the limit and not show in test report.
4.Final Level = Reading level + Correct Factor.
5.Correct Factor = Antenna factor+ Cable loss factor - Amplifier factor.
6.Margin= Measurement Level-Limit.
7.All test modes were tested, with only the worst Mode 41 recorded.

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	DC 12V	Test Mode:	Mode 41



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	40.7014	51.18	-16.80	34.38	40.00	-5.62	QP
2	43.0504	50.82	-16.89	33.93	40.00	-6.07	QP
3	162.0413	43.80	-19.92	23.88	43.50	-19.62	QP
4	234.1682	47.07	-19.96	27.11	46.00	-18.89	QP
5	440.1961	39.53	-13.10	26.43	46.00	-19.57	QP
6	919.2865	31.42	-0.33	31.09	46.00	-14.91	QP

Remarks:
1.An initial pre-scan was performed on the peak detector.
2.Quasi-Peak measurement were performed at the frequencies with maximized peak emission.
3.The emission levels of other frequencies are very lower than the limit and not show in test report.
4.Final Level = Reading level + Correct Factor.
5.Correct Factor = Antenna factor+ Cable loss factor - Amplifier factor.
6.Margin= Measurement Level-Limit.
7.All test modes were tested, with only the worst Mode 41 recorded.

6. 20DB BANDWIDTH TEST

6.1 TEST PROCEDURE

1. Se span = 1.5 ~ 5 times OBW.
2. Set RBW = 1 KHz.
3. Set the video bandwidth (VBW) ≥ 3 x RBW.
4. Detector = peak.
5. Trace mode = max hold.
6. Sweep = auto couple.
7. Allow the trace to stabilize.
8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

6.2 LIMIT

N/A

6.3 TEST SETUP

6.4 DEVIATION FROM STANDARD

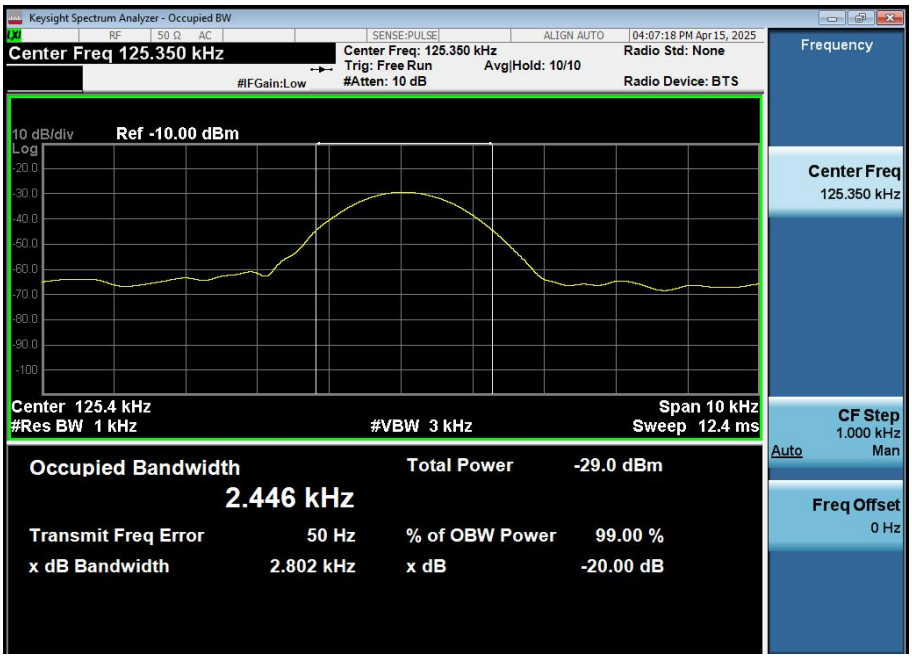
No deviation.

6.5 TEST RESULT

Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	101kPa	Test Voltage:	DC 12V

Test Coil	Frequency (kHz)	20dB Bandwidth (kHz)	Result
ANT 1	125.4	2.802	Pass
ANT 2	117.2	2.715	Pass
ANT 3	161.8	2.813	Pass

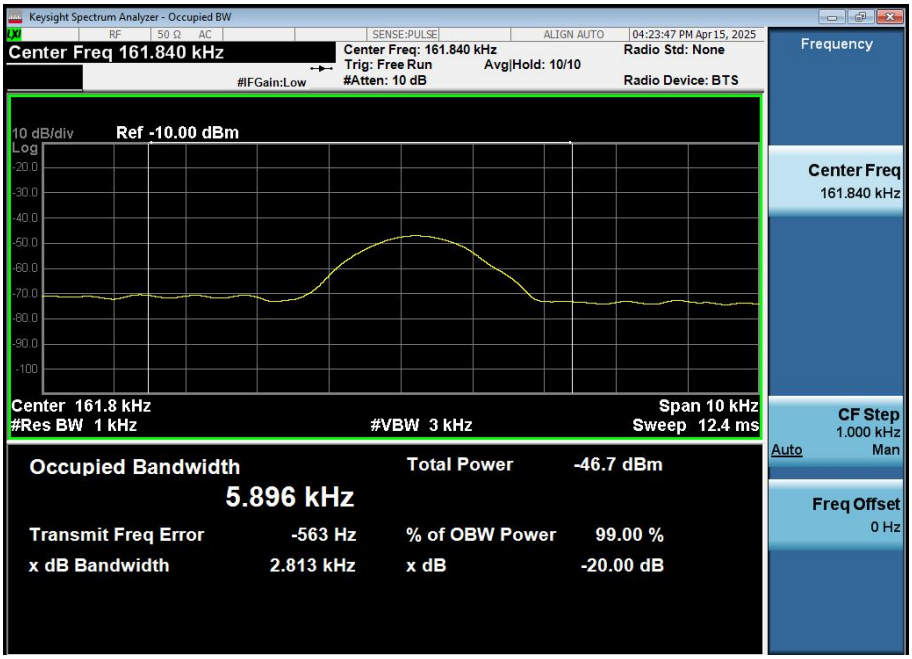
ANT 1:



ANT 2:


Keysight Spectrum Analyzer - Occupied BW
RF 50 Ω AC
SENSE:PULSE
ALIGN AUTO
04:16:23 PM Apr 15, 2025
Span 10.000 kHz
Center Freq: 117.190 kHz
Trig: Free Run
Avg|Hold: 10/10
#IFGain:Low
#Atten: 10 dB
Radio Std: None
Radio Device: BTS
10 dB/div
Log
Ref 0.00 dBm
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
Center 117.2 kHz
#Res BW 1 kHz
#VBW 3 kHz
Span 10 kHz
Sweep 12.4 ms
Occupied Bandwidth
2.337 kHz
Total Power -22.9 dBm
Transmit Freq Error 56 Hz
% of OBW Power 99.00 %
x dB Bandwidth 2.715 kHz
x dB -20.00 dB
Span
Span
10.000 kHz
Full Span
Last Span

ANT 3:


Keysight Spectrum Analyzer - Occupied BW
RF 50 Ω AC
SENSE:PULSE
ALIGN AUTO
04:23:47 PM Apr 15, 2025
Center Freq 161.840 kHz
Center Freq: 161.840 kHz
Trig: Free Run
Avg|Hold: 10/10
#IFGain:Low
#Atten: 10 dB
Radio Std: None
Radio Device: BTS
10 dB/div
Log
Ref -10.00 dBm
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-100
Center 161.8 kHz
#Res BW 1 kHz
#VBW 3 kHz
Span 10 kHz
Sweep 12.4 ms
Occupied Bandwidth
5.896 kHz
Total Power -46.7 dBm
Transmit Freq Error -563 Hz
% of OBW Power 99.00 %
x dB Bandwidth 2.813 kHz
x dB -20.00 dB
Frequency
Center Freq
161.840 kHz
CF Step
1.000 kHz
Auto
Man
Freq Offset
0 Hz

7. ANTENNA REQUIREMENT

Standard requirement:	FCC Part15 C Section 15.203
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	
EUT Antenna:	
The antenna is Loop Coil antenna, the best case gain of the antennas is 0dBi, reference to the appendix II for details	

8. TEST SETUP PHOTO

Reference to the appendix I for details.

9. EUT CONSTRUCTIONAL DETAILS

Reference to the appendix II for details.

※※※※※ END OF REPORT ※※※※※